DOCUMENT RESUME

ED 406 779 EC 305 472

AUTHOR Luft, Pamela
TITLE Visual Activities Using the Internet: Enhancing Experiential Learning, Concept Development, and Literacy.
PUB DATE Mar 97
NOTE 10p.; In: Windows - 97 on the New Standards. Monograph of Collected Papers from the Annual Conference of the Association of College Educators - Deaf and Hard of Hearing (23rd, Santa Fe, NM, March 7-10, 1997); see EC 305 461.
PUB TYPE Guides - Non-Classroom (055) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Computer Uses in Education; Concept Formation; *Deafness; Educational Strategies; Elementary Secondary Education; *Experiential Learning; Hearing Impairments; Information Sources; *Internet; *Literacy Education; *Partial Hearing; *Visual Learning

ABSTRACT

This paper discusses the capabilities of the Internet, including the ability to combine textual with visual presentation information, that make it an especially useful learning tool for students with hearing impairments. Instructional design recommendations are made for effective computer-assisted lessons that will help to develop and expand student concepts and literacy skills. The importance of allowing students to select World Wide Web sites and resources that present information in an effective manner individually suited to them is also emphasized. Three steps are outlined for creating a lesson to develop literacy skills using the visual format of computers: (1) a needs assessment phase to define and specify the project, taking into account the students' needs as well as classroom and scheduling constraints; (2) a design phase; and (3) a development and implementation phase, which transfers the ideas to a useful format. Different types of visual information that can be found on the Internet and the English literacy skills that are supported by this information are listed. Finally, the benefits of lessons which incorporate a variety of visual information using the Internet are described. (CR)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ED 406 779

Visual Activities Using the Internet: Enhancing Experiential Learning, Concept Development, and Literacy

by

Pamela Luft
Kent State University
405 White Hall
Kent, OH 44242-0001
Tel.: 330-672-2294 (V)
Tel.: 330-672-2396 (T)
FAX: 330-672-2512
E-mail: pluft@emerald.educ.kent.edu

PERMISSION TO REPRODUCE AND
DISSEMINATE THIS MATERIAL
HAS BEEN GRANTED BY
J. Egelston-Dodd

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)

EC 305472

12

BEST COPY AVAILABLE

The Internet has many capabilities that make it especially useful with Deaf and hard-of-hearing students, who benefit from a highly visual presentation of information. The Internet provides teachers with access to a wide variety of visually-based resources for use in the classroom including pictures, graphics, and video. These can be used to supplement existing textual information or to represent it in another conceptual (and visual) format. The combined textual with visual presentation of information enhances conceptual understanding and can lead to increased academic achievement

Both the teacher and students can use computer capabilities to identify graphic information. In addition, textual information may be represented in another conceptual and visual format such as conceptual maps or semantic webs. Imagery strategies which identify relationships between ideas and chunking of information have been found to be effective in assisting students to process new learning (Dwyer, 1994). Many computer application and word processing packages include spread sheet and graphic capabilities that can be used to portray information in a visual form.

The combined textual with visual presentation information can assist students in increasing their conceptual understanding by this more thorough representation and refinement of the concept. Some researchers believe that a visual vocabulary precedes a verbal one, such that strengthening the visual vocabulary will assist verbal learning and response capabilities (Hortin, 1994). Such an enhanced learning environment ultimately can lead to increased

academic achievement (Dwyer, 1994). However, any lessons, regardless of new or unusual formats used, need to be effectively designed and implemented (Hannafin & Peck, 1988).

Despite the inherent novelty and therefore, initial motivation in using computers and the Internet, conceptualizing lessons and planning research activities for students needs to be based upon principles of instructional design. Based upon recommendations from Hannafin and Peck (1988) effective computer-assisted lessons should:

1. be based on the teacher's instructional objectives;
2. match learner characteristics (knowledge and skill levels) with abilities on various input devices, type of screens, and outputs;
3. maximize interaction by asking for meaningful and thoughtful responses;
4. be individualized and adapted to teach topics of interest as well as remedial instruction;
5. maintain learner interest through intrinsic merit of the lesson;
6. approach the learner positively, taking advantage of the nonthreatening, patient, and "forgiving" nature of the computer which does not penalize for errors or time taken;
7. provide a variety of feedback: positive when doing well particularly for younger students, and corrective feedback for older learners and those who desire more efficiency and information about their performance;
8. fit the instructional environment to require minimal teacher involvement, such that lessons can be started and completed without assistance and will record student performance to be reviewed later when the teacher has sufficient time;
9. evaluate performance appropriately based on meaningful, measurable objectives with accurate assessment of their accomplishment to include the following:
    a. asking the right questions, not just those in the most convenient format;
    b. avoiding ambiguous or poorly worded questions by using the same vocabulary as found in the lesson and that support a correct interpretation by students;

c. judging answers thoroughly and to include unanticipated responses;
d. are not confusing an inability to respond with ignorance of the correct answer or procedure;

10. use the computer's resources wisely with a recognition of the screen's poor resolution in comparison to printed materials, but uses to advantage its capabilities for static and animated graphics, colors, flashing, and sound to amplify ideas and concepts;
11. be based on principles of instructional design to:
    a. motivate the learner;
    b. inform the learner of the objectives of the lesson;
    c. review prerequisite skills required for lesson success;
    d. present well-organized instruction;
    e. evaluate progress frequently,
    f. provide adequate feedback;
    g. allow for adequate practice; and
    h. evaluate the final performance of both the student and the lesson itself (Gagne & Briggs, 1979);
12. be evaluated thoroughly and over time, when possible, for instructional quality, affective considerations, cosmetic appeal, curricular relevance, accuracy of the program; and monitors the achievement of the objectives and learners' attitudes toward the lesson.

Internet research lessons and projects are well suited to these principles. A thoughtful and relevant project provides students with a framework for using and expanding their conceptual understanding to learn with more depth. In addition, they are allowed to select Web sites and resources that portray information in a manner that is most effective for them as individuals. Choice helps to maintain motivation as well as truly individualizing the learning and response format. Group projects allows students also to receive feedback from peers in addition to that provided by the teacher and allows the teacher more time to monitor those that may require some additional assistance.

The quality most often credited as contributing to the effectiveness of computer-based learning is interaction (Hannafin & Peck, 1988). The active exchange of information between student and computer is key, and the ability to individualize is largely responsible for learning efficiency. Use of the Internet for resource searches as well as interactive and multimedia programs provides a forum for high levels of student engagement.

Any project must be carefully designed. With limited access to a computer lab or limited numbers of computers available within the classroom, the logistics of such an activity must be thoughtfully planned. Hannafin and Peck (1988) suggest the following steps in creating a lesson:

1. a needs assessment phase to clearly define and specify the project taking into account the students' needs as well as classroom and scheduling constraints;
2. a design phase to determine the sequence of activities and to select the best, or several potential, solutions as necessary for each instructional objective; and
3. a development and implementation phase which transfers the ideas to a useful format including testing and debugging, formative and summative evaluations, and revision.

Designing a lesson or project using visual materials requires identifying strategies to effectively incorporate visual formats that also address the development and expansion of student concepts and literacy skills. Not all use of visuals assists with student learning (Dwyer, 1994). Research has found that learners possessing higher intelligence do better with complex visual displays. Yet, by varying the degree of realistic detail within a visual image, a teacher can reduce differences in performance of learners bring different levels of prior

knowledge to the learning situation (Dwyer 1987 as cited in Dwyer, 1994). The teacher can suggest certain visuals for certain students, however the variety of resources on the Internet allows individual students to access visuals from which they can choose those which are most meaningful and helpful to them.

Examples of using the Internet effectively include enhanced conceptual development by using (1) topical searches to expand students' knowledge base, (2) to create or expand information presented as graphic organizers (e.g., semantic webs and conceptual maps), and (3) access to video encyclopedias or resources that provide footage of real-world events and their impact on our lives. Topical searches using one of the many search engines can lead students to learn and understand with increasing depth. There are a number of search engines available, some of which may come with your Internet access program.

Information from many Web sites and resources can be imported into word processing and other application programs directly, thus facilitating the creation of visual displays within textual material. Access to online and video encyclopedias provide a source of maps, visuals, photographs, in addition to textual material. Graphic representations can be created by using spreadsheet programs (such as Lotus 123, Excel, in addition to those associated with many word processing programs) that make pie charts, line graphs, bar graphs, and other visual images. Online news services also provide video segments, photographs, and visual images useful in presenting textual information. A number of these resources are subscription-based but can be a very useful

resources for classrooms (Internet World, 1996, October; Technological Horizons in Education Journal, April 1995, April; 1996, August):

English literacy skills are supported by (1) text that includes pictorial, graphic, or video footage, (2) student presentations or explanations using both textual and visual information, (3) written communication in participating in bulletin boards, e-mail, and collaborative projects with other classes or Internet users, and (4) communication skills in accessing and researching real-time or information services such as the weather and news. Language arts skills are supported by several specific Web sites and interactive CED-ROM programs, as well as social studies, science, and math-based resources. The Internet also allows access to topical chat lines and bulletin boards for establishing specific communication and interaction opportunities for students and the teacher. Some news and information services provide on-line "experts" that students can access. Students who have difficulty in communicating through writing will have functional and "live" opportunities during which it is important that they write clearly. Successful experiences will build their confidence and help them learn strategies that can support them through their difficulties, such as asking peers for assistance or reading messages "orally" to themselves prior to sending them.

Lessons which incorporate a variety of visual information using the Internet can provide current and motivating content for students who otherwise have difficulty learning from text-based information. Classroom

presentations and discussions are likely to improve as a result of students having had initial learning experiences accessing materials that are best suited to their learning styles and based upon their personal preferences. Students will be better prepared to participate in sharing and explaining what they have learned resulting in further development both of their own and others' understanding. Simultaneously, they will be increasing their linguistic and communication skills, both in interpreting information for understanding and in expressing it to others.

Both the teacher and students can use the Internet to meet individual and unique requirements in creating projects, lessons, and activities. Learning is flexible and students assist in making resource choices which will best support their own individual learning and conceptual needs. Incorporating the principles of learning and following systematic procedures for lesson design will result in enhanced academic growth through learning opportunities most suitable for each individual student.

References

Dwyer, F. M. (1994). One dimension of visual research: A paradigm and its implementation. In D. M. Moore & F. M. Dwyer (Eds.), Visual literacy: A spectrum of visual learning (pp. 383-402). Englewood Cliffs, NJ: Educational Technology Publications.

Gagne, R. M. & Briggs, L. J. (1979). Principles of instructional design (2nd ed.). New York: Holt, Rinehart and Winston.

Hannafin, M. J. & Peck, K. L. (1988). The design, development, and evaluation of instructional software. New York: Macmillan Publishing.

Hortin, J. A. (1994). Theoretical foundations of visual learning. In D. M. Moore & F. M. Dwyer (Eds.), Visual literacy: A spectrum of visual learning (pp. 5-30). Englewood Cliffs, NJ: Educational Technology Publications.

Internet World, October 1996. (www.iw.com).

Technological Horizons in Education Journal, 22, April 1995. (www.thejournal.com).

Technological Horizons in Education Journal, 24, August 1996. (www.thejournal.com).